



Affordable and Clean Energy

SDG 7.2 University measures towards affordable and clean energy

SDG 7.2.1 Energy-efficient renovation and building

A thorough set of policies developed by Al-Zaytoonah University of Jordan have been put into place on campus. Their goal is to reduce energy consumption to that end Al-Zaytoonah University of Jordan has an agreement with Philadelphia Solar to maintain the solar system (Standard level 1).

الشركة الاستثمارية جامعة الزيتونة الأردنية
Al-Zaytoonah University Invest. Co.
(ذات مسؤولية محدودة)

رقم : ج ز 91 / 2021 / 17
التاريخ : 2021 / 5 / 31

السادة / شركة فيلادلفيا للطاقة الشمسية المحترمين
تحية طيبة وبعد ،

نعلمكم موافقتنا على العرض المقدم من قبلكم بخصوص صيانة نظام الطاقة الشمسية في
جامعة الزيتونة الأردنية (Standard level 1) وكما هو وارد في تفاصيل العرض
المشار إليه (مرفق) ، مع الأخذ بعين الاعتبار مايلي :

1. يبدأ عقد الصيانة بتاريخ 2021/6/1 وينتهي بتاريخ 2022/5/31 .
2. يشمل عقد الصيانة كافة مكونات النظام بما فيها الجزء الذي تم تركيبه وتشغيله
في فترة سابقة بقدرة (154) واط .
3. قيمة العقد شاملاً الضريبة العامة على المبيعات [REDACTED]
(سبعة آلاف و خمسمائة وأربعة و ستون دينار و 650 فلساً) يتم دفعه على
النحو التالي :


أ) الدفعة الاولى [REDACTED] بتاريخ 2021/6/30 .
ب) الدفعة الثانية [REDACTED] بتاريخ 2021/12/31 .

واقبلوا فائق الاحترام
م. عبد اللطيف أمين موعي
نائب رئيس هيئة المديرين

1/5

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هاتفكس : + 962 - 6 - 5931483



Philadelphia Solar

فيلادلفيا
للطاقة الشمسية

Att: Al-Zaytoonah University of Jordan: -

We are pleased to submit our Maintenance offer from 1-6-2021 till 1-6-2022 as following: -

⚡ **Preventive maintenance Description: -** ↓

No.		Standard level 1	Standard level 2
1	Preventive Maintenance Visits	Monthly	Seasonally
2	Call Response	Emergency call within 48 hours	Emergency call within 48 hours
3	Inspection & Testing	Included	Included
4	Accessories	Included Mc4/ cable tight/fuses/clamps	Included Mc4/ cable tight/fuses/clamps
5	Reporting	monthly	Seasonally
6	Main Equipment Warranty	As per manufacturer	As per manufacturer
7	Training	Included (once year) general training & cleaning training	Included (once year) general training & cleaning training
8	Replacement Main Equipment (if required)	Not-Included	Not-Included
	Remote Technical Assistance	spare part not included	spare part not included
	Total / year	6,521.25 JD	4,367.50 JD

⚡ **Taking into your consideration the following: -**

- ❖ **Recommendation:** - Cleaning to be done minimum 2 times in the month for all building & system by the client.
- ❖ **Payment Terms:** -50% on 30.06.2021 and 50% on 31.12.2021.
- ❖ **Sales tax** to be added on issuing invoices.

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2 | Page

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www.philadelphia-solar.com

015

SDG 7

Affordable and Clean Energy

Philadelphia Solar فيلادلفيا للطاقة الشمسية

Schedule Preventive Maintenance: -

No.	Station Name	Part	Action	Interval	done
1	Module structure	Module structure	General Inspection	Annually	✓
		Cabinet door filters	Replacement (or as per manufacturer recommendation)	annually	✓
		fans	Inspections air inlet and outlet meshes, Tightness of terminals Dustiness, corrosion and temperature (or as per manufacturer recommendation)	seasonally	✓
		input/output	Inspection voltage & current (as per manufacturer recommendation)	monthly	✓
		fuses	Performance Quality of supply (as per manufacturer recommendation)	monthly	✓
2	Inverters	Control panel	cleaning Use a soft damp cloth to clean the control panel. Avoid harsh cleaners which could scratch the display window (as per manufacturer recommendation)	seasonally	✓
		electrical connections	visual inspection (as per manufacturer recommendation)	monthly	✓
		connections terminals	inspection for discoloration or signs of high temp/current* (as per manufacturer recommendation)	monthly	✓
		DC connectors	visual inspection (as per manufacturer recommendation)	monthly	✓
		modules status inspection	inspection and make sure the cells without any broken or snill trail or bubbles (as per manufacturer recommendation)	monthly	✓

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3 | Page = P.O Box 143808 Postal Code 11814 Amman - Jordan
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3	PV modules	modules status inspection	inspection and make sure the cells without any broken or snill trail or bubbles (as per manufacturer recommendation)	monthly	✓
		voltage , current & power	Performance Quality of supply (as per manufacturer recommendation)	monthly	✓
		Earthing connection	inspection for any lose or damaged (as per manufacturer recommendation)	seasonally	✓
		connections terminals	inspection for any lose or damaged (as per manufacturer recommendation)	seasonally	✓
4	monitoring system	controller	check the Performance ratio for the system and help to backup with 3rd party	monthly	✓
5	Cables	Measurement	Record all voltage and current readings from the monitoring system	monthly	✓
			performance open-circuit voltage (Voc) of all strings with the inverter (as per manufacturer recommendation)	monthly	✓
6	Combiner Box	Fuses	performance maximum power current (Imp) of all strings with the inverter on and at specified or recorded levels of power (as per manufacturer recommendation)	monthly	✓
7	combiner box cable tray & ducts	fuses check tray over all situation	continuity of all system fuses at the combiner boxes, disconnects, and inside the inverter(s);	seasonally	✓
			check tray over all situation	seasonally	✓
			Make sure heat in the tray is not excessive	seasonally	✓
			inspection all fastening devices	seasonally	✓

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8	Sensors	sensors	Make sure the tray is not overloaded in weight and/or volume	seasonally ✓
		sensors	inspection	seasonally ✓
		measuring	outer housing panels	seasonally ✓
9	Distribution Boards	Distribution Boards	inspection wire insulation abrasion/damages	seasonally ✓
			inspection for overheating wires and copper parts	annually ✓
			Tighten terminal lugs of wiring connection	annually ✓
			inspection condition of vibration, noise	seasonally ✓
			inspection that all covers and doors are secure	seasonally ✓
			Tighten bolts and nuts/ loose connections	annually ✓
			inspection for physical damages dents and rusts	annually ✓

If you have any further question, kindly contact **Safaa Hussien** who is our nominated sales Representative for this project.
 Cell. +962 791369269
 Email: safaa@philadelphia-solar.com

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615

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SDG 7.2 University measures towards affordable and clean energy

SDG 7.2.2 Upgrade buildings to higher energy efficiency

Al-Zaytoonah University of Jordan has developed extensive policies and regulations to ensure all renovations or new builds are following energy efficiency standards within these buildings, as well as energy-saving and carbon-reduction practices to be followed by all users of the buildings, facilities, and equipment on campus. Further details are mentioned below.

When renovating existing buildings or creating new ones on campus, strict adherence to government rules regarding environmental protection, energy efficiency, and water conservation must be maintained. These include, but are not limited to, the following points:

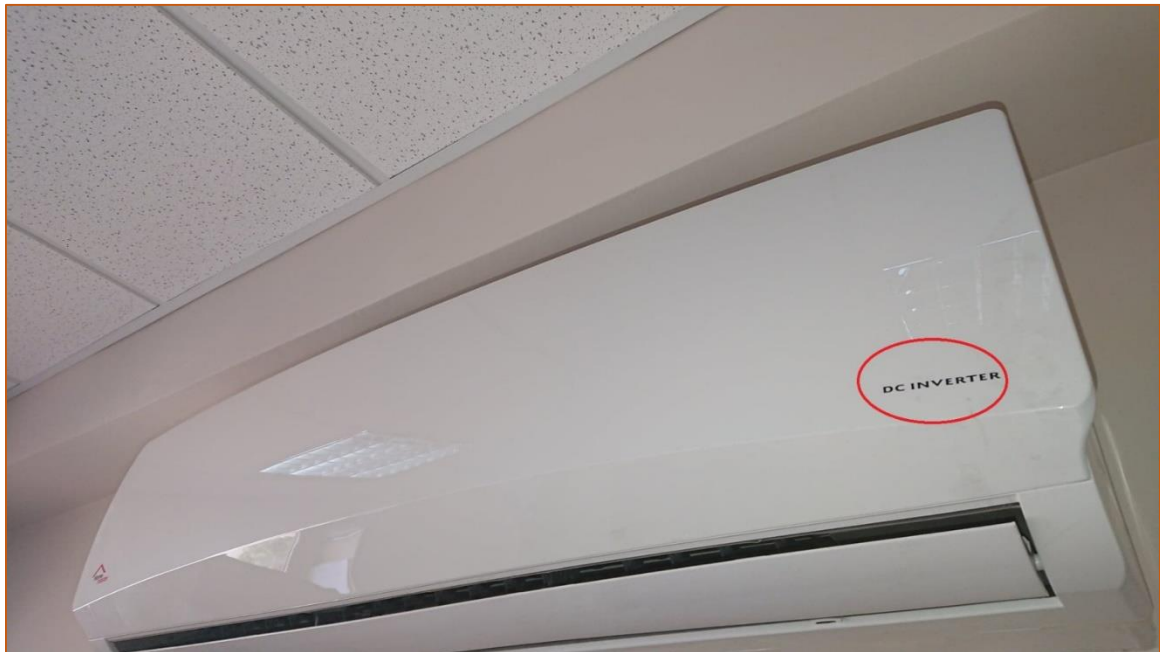
75% of our University's lightning system is energy efficient; LED Lights are used in most of the university's buildings with motion sensor.



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LED Light with motion detector

1.2 Split-type air-conditioners are purchased in accordance with the latest environmental regulations and are inverter air-conditioners.



Air-conditioners with DC inverter

1.3 Al-Zaytoonah University of Jordan is naturally renovated; as seen in the pictures all the offices and the lecture rooms have windows where sunlight and wind can naturally occur.

The electricity box that is shown above, is a controller box which can control the timing of when the electricity is turned off or on to have more electricity efficiency.

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1.4 Al-Zaytoonah University of Jordan has the automatic fire alarms sensor, emergency lights system where both are turned on automatically if a fire occurred or the electricity went down.

As well as the heating system that is provided in all the buildings in the university

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Emergency lights



The Automatic Fire Alarm Sensor System



The Automatic heating System







SMART DOOR

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SDG 7.2.3 Carbon reduction and emission reduction process

Al-Zaytoonah University of Jordan is adamant in developing gas emission reducing program and providing a green campus. To that extent Al-Zaytoonah University of Jordan has done the following:

1. Al-Zaytoonah University of Jordan has constructed a charging parking for the private electric vehicle.
2. Al-Zaytoonah University of Jordan used a renewable energy for electricity.
3. Al-Zaytoonah University of Jordan has established the first Jordanian solar park, which consists of different components; a solar tree where the leaves are PV panels (M36s-100Wp), a hybrid system (PV/wind), and solar umbrellas fitted with electricity outlets for students.
4. Al-Zaytoonah University of Jordan has encouraged rideshare to adopt healthy and sustainable transportation options. (Carpool).

	
<p>Charge Parking</p>	<p>Renewable Energy Using Solar System</p>
	
<p>First Jordanian Solar Park</p>	<p>Ride Share</p>



These steps have produced a total carbon footprint (CO₂ emission in the last 12 months, in metric tons) of:

- Co₂ (electricity) = $(945000/1000) \times 0.84 = 793.8$ metric ton (according to explanation provided in evidence 2.6)
- Co₂(bus) = (Zero) metric ton (no Buses within the campus)
- Co₂(cars) = (Zero) metric ton (just the electrical cars are allowed)
- Co₂(motorcycle) = (Zero) metric ton (no motorcycle within the campus)
- Co₂(total) = 793.8 metric ton

Description

Carbon Footprint: 793.8 metric ton





- Zero Emission car entering the **campus**

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Total estimated electricity use per year	
Total energy used	945000 kwh
University floor space	72993 m ²

SDG 7.2.4 Plan to reduce energy consumption

Al-Zaytoonah University of Jordan has four systems to reduce electricity usage: wind, solar, clean Biomass and Bio Diesel systems. The four systems are used to generate enough power to supply the university buildings to be 100% depending on these sources.

	
<p>Wind Energy</p>	<p>Solar Systems</p>
	
<p>Bio Diesel</p>	<p>Clean Biomass</p>

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SDG 7.2.5 Energy wastage identification

Al-Zaytoonah University of Jordan try to identify energy wastage and implement policies to diminish these wastage, as described below:

1. All the papers used in our university in all departments are shredded and recycled.
2. Papers and cardboard are put in a special can to be collected and recycled.
3. The weekly deans' meetings are newly paper free, everything is being done through computers and emails to reduce the usage of papers.
4. The university has three types of garbage cans; one for plastic, one for papers and the third one is for anything else, to help students be part of saving the environment.
5. One way to treat organic waste in the university is taking all the chopped trees and woods to a local chopper or shredder and turn it to wood veneer and reuse it or even sell it.
6. The university operate its own sanitary treated plants resulting sewerage (sludge) being recirculated within the treated plants due to the small amounts resulted.
7. Al-Zaytoonah university of Jordan uses recycled water for irrigation, and to reduce water usage; the university uses the dripping methodology.
8. Collage of Pharmacy, Collage of Nursing and the university's clinic use containers with international specifications to get rid of toxic content, to be disposed of in the most proper ways.



Paper shredder



Paper and hard paper recycling can



Paper free meetings



Three different typrd of cans to resort trash



Example of Organic Waste Treatment



Treated water consumed



SDG 7.2.6 Divestment Policy

Al-Zaytoonah University of Jordan recognize the important of divestment, in order to promote green energy and help spread the benefit of green energy as well as provide green energy to the community and not just the campus. To that purpose, Al-Zaytoonah University of Jordan has an agreement with Jordan Electricity Company in which the University provides the excess amount of its solar energy.

شركة الكهرباء الأردنية - شركة الكهرباء العامة
07.26 07/08/2020

رقم المشترك: 05/380711/001801
رقم فاتورة الاستهلاك: 01/20793/302936
رقم الفاتورة: 20210300
رقم العداد: 000020168000777
تاريخ/وقت القراءة: 10:39:35 20/03/2021

اسم المشترك: جامعة الزيتونة الاردنية
رقم فاتورة الاستهلاك: 05/380711/001801
رقم الفاتورة: 01/20793/302936
رقم العداد: 000020168000777
تاريخ/وقت القراءة: 10:39:35 20/03/2021

الكمية (لديوس)	سابقة	حالية	المستجدة من الشبكة
76180	409445	417063	
110640	404866	415930	
0		887120	
		721590	

تم احتساب كمية الاستهلاك ضمن ادنى مخطوطة

البيان	طنس	دولار
قيمة الاستهلاك	760	1
قيمة اسعار الوقود	0	000
اسرة العداد	0	000
طنس الريزف	76	180
رسوم القفرونت	1	000
رسوم الترافيك	381	586
قيمة الفائض	500	496
مصاريف التسوية	0	000
التقييمات المخطوطة	500	496

تم العمل بالتحفة الجديدة اعتبارا من 2016-11-1

اسم المشترك: جامعة الزيتونة الاردنية
رقم العداد: 000020168000777

رقم المشترك / الفاتورة: 01/20793/302936
رقم الفاتورة: 20210300
القيمة المخطوطة: 500.496

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SDG 7.3.1 Energy use per sqm

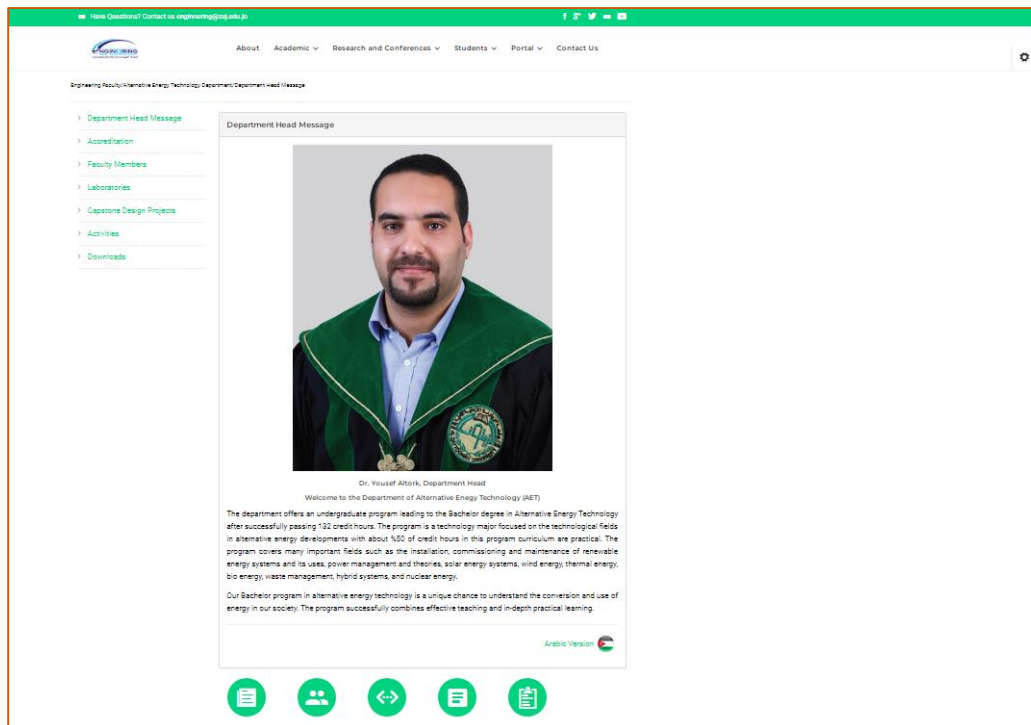
Energy usage per sqm	12.95
Total energy used per year	945000 kwh
University floor space	72993 m ²

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SDG 7.4.1 Local community outreach for energy efficiency

Al-Zaytoonah University of Jordan acknowledge the important of being energy efficient as well as spreading the knowledge to the community on how to be energy efficient as it is part of its vision as part of its vision. In order to achieve that goal ZUJ provides programs for local community to learn about importance of energy efficiency and clean energy, as follows:

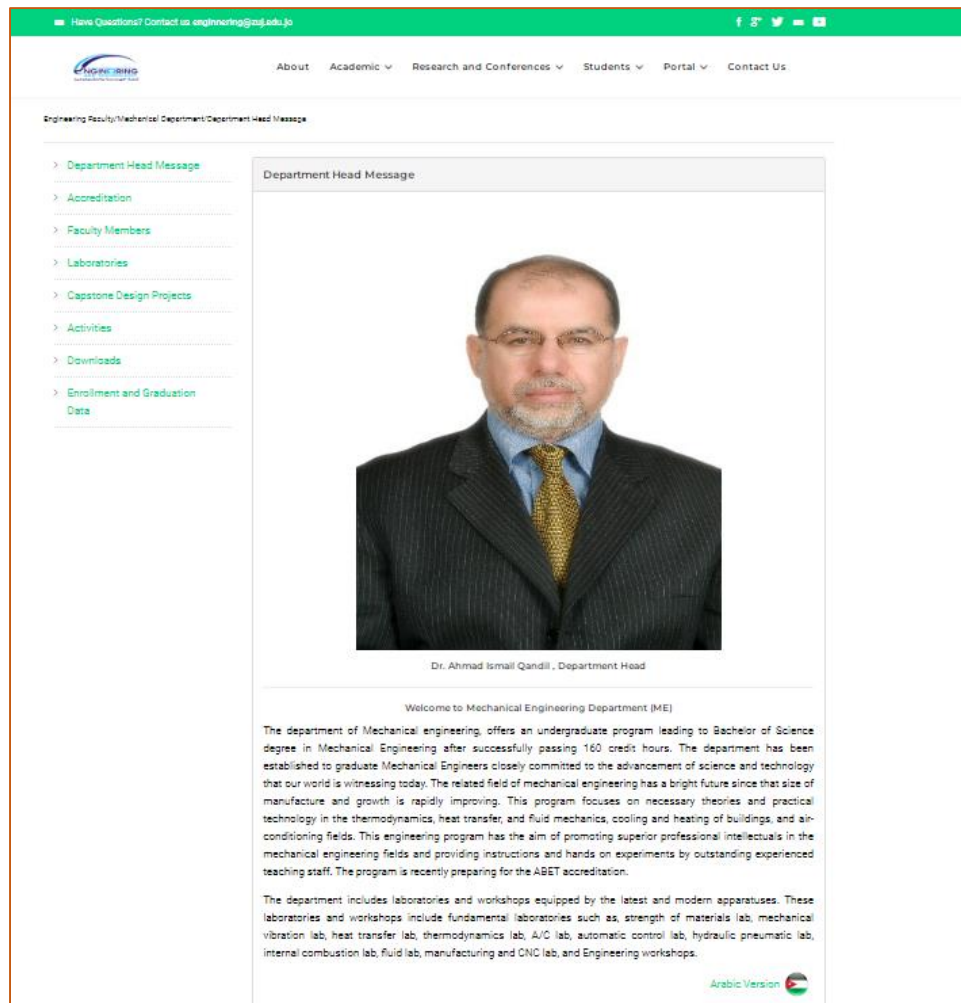
1. Al-Zaytoonah University of Jordan developed an Alternate Energy Department, which offers an undergraduate program leading to the Bachelor degree in Alternative Energy Technology after successfully passing 132 credit hours. [Click Here \(Link\)](#)



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Total number of specialty courses on Alternate Energy are 52 courses including labs and workshops, as seen in this link, [Click Here \(Link\)](#)

2.A new program under the mechanical engineering's department entitled sustainable energy engineering was established. [Click Here \(Link\)](#)




The screenshot shows the website for the Mechanical Engineering Department at Zaytoonah University of Jordan. The page features a navigation menu with links for 'About', 'Academic', 'Research and Conferences', 'Students', 'Portal', and 'Contact Us'. A sidebar on the left contains a list of department-related links such as 'Department Head Message', 'Accreditation', 'Faculty Members', 'Laboratories', 'Capstone Design Projects', 'Activities', 'Downloads', and 'Enrollment and Graduation Data'. The main content area is titled 'Department Head Message' and includes a portrait of Dr. Ahmad Ismail Qandil, the Department Head. Below the portrait, there is a welcome message and two paragraphs of text describing the department's undergraduate program and its laboratories and workshops. The text mentions that the department offers a Bachelor of Science degree in Mechanical Engineering after 160 credit hours and is preparing for ABET accreditation. It also lists various laboratories and workshops, including strength of materials, mechanical vibration, heat transfer, thermodynamics, A/C, automatic control, hydraulic pneumatic, internal combustion, fluid, manufacturing and CNC, and Engineering workshops.


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Total number of specialty courses on sustainable energy engineering is about 30% of the total courses which is equivalent to about 48 hours.

3. Al-Zaytoonah University also offers different courses that address energy efficiency and clean energy in different programs, as follows
 - a. Civil and Infrastructure Engineering, there are 25 courses [Click Here \(Link\)](#).



الجامعة الزيتونة الأردنية
Al-Zaytoonah University of Jordan
كلية الهندسة والتكنولوجيا
Faculty of Engineering and Technology



تراثنا وجودتنا
"Tradition and Quality"

Course Plan for Bachelor program - Course Plan Development and Updating Procedures/ Civil and Infrastructure Engineering Department	QF09/0407-3.0E
--	-----------------------

Course Plan for Civil and Infrastructure Engineering (Bachelor Program) No.: (20171)	
Approved by Deans Council by decision (07/72/2016/2017) dated (30/08/2017)	
(160) Credit Hours	
No.	Goals and learning outcomes
PEO 1	Implement technical, collaborative, and communication skills with leadership principles, to pursue careers in Civil and Infrastructure Engineering.
SO	
1	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2	An ability to apply the engineering design process to produce solutions that meet specified needs with consideration for public health and safety, and global, cultural, social, environmental, economic, and other factors as appropriate to the discipline.
5	An ability to function effectively as a member or leader of a team that establishes goals, plans tasks, meets deadlines, and creates a collaborative and inclusive environment.
6	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
8	An ability to understand and explain the key concepts used in management, business, public policy, public administration, leadership principles and licensure.
PEO 2	Seek higher degrees in Civil and Infrastructure Engineering and embark on continuing education
SO	
1	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2	An ability to apply the engineering design process to produce solutions that meet specified needs with consideration for public health and safety, and global, cultural, social, environmental, economic, and other factors as appropriate to the discipline.
3	An ability to communicate effectively with a range of audiences.
6	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

Affordable and Clean Energy

- Course Plan of Civil and Infrastructure Engineering

b.Mechanical Engineering offers one course on Mechanical Systems in green buildings, [Click Here \(Link\)](#).

- Course Plan of Mechanical Engineering

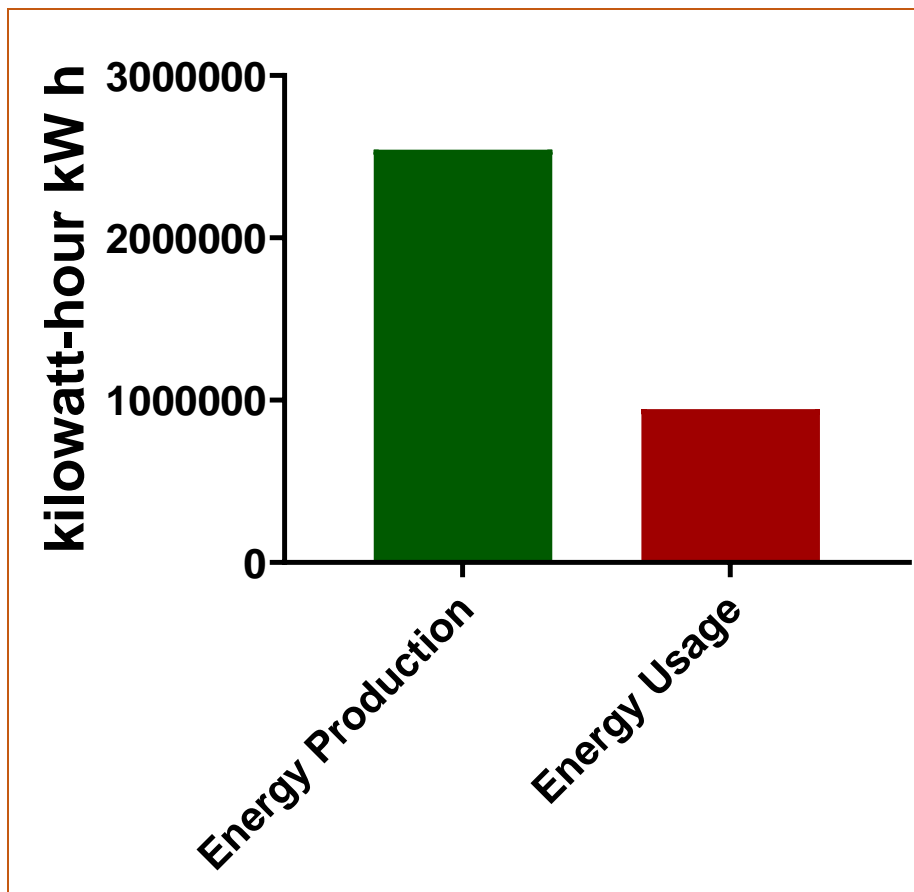
Brief course description- Course Plan Development and Updating Procedures\ Mechanical Engineering Department		QF09/0409-3.OE	
0911322	3	Thermodynamics (2)	Thermodynamics (1)
This course covers the following topics: Review of thermodynamic basic laws and principles. Thermodynamic cycles analysis, energy analysis of both closed and open systems, irreversibly, exergy analysis for both control mass and volume systems, vapor cycles, gas power cycles, refrigeration and air thermodynamic cycles			
Course number	Credit hours	Title of the course	Prerequisite-co-requisite
0911324	3	Fluid Mechanics (1)	Dynamics
Introduction, Fluid properties, Basic units, Fluid statics, Pressure and its measurements, Forces on plane and curved submerged surfaces, buoyancy & floatation, Fluids in motion, Flow kinematics and visualization, Basic control volume approach, Differential and integral continuity equation. Pressure variation in flowing fluids, Euler's and Bernoulli's equations, Applications of Bernoulli equation, Momentum principle and its applications, Navier-Stokes equations, Energy equation, Hydraulic and energy grade lines, Dimensional analysis and similitude, Surface resistance and introduction to boundary layer theory. Flow in conduits, laminar and turbulent flows, Frictional and minor losses, Piping systems.			
Course number	Credit hours	Title of the course	Prerequisite-co-requisite
0911361	3	Engineering Numerical Methods	Calculus (2) For Engineering students

Brief course description- Course Plan Development and Updating Procedures\ Mechanical Engineering Department		QF09/0409-3.OE	
Course number	Credit hours	Title of the course	Prerequisite-co-requisite
0911323	1	Thermodynamics Lab.	Co. Thermodynamics (1)
Experimental methods in the following : Mechanical equivalent of heat; The adiabatic exponent; Marcet boiler; Bomb calorimeter; Flow through nozzle; Refrigeration system; Air conditioning system; Heat pump and air cooler; single stage air compressor; cooling tower; Thermic unit (steam turbine power plant).			
Course number	Credit hours	Title of the course	Prerequisite-co-requisite
0911325	1	Fluid Mechanics Lab.	Co. Fluid Mechanics (1)
Experimental methods in the following systems: center of pressure; impulse momentum principle; pumps, friction losses in pipes, stream lines and flow fields, buoyancy and boundary layer theory. Radial flow fan, Water turbine, Flow measurement.			
Course number	Credit hours	Title of the course	Prerequisite-co-requisite
0911331	3	Heating and Air Conditioning	Thermodynamics (1)
Review of psychrometry; thermal comfort; air conditioning processes; inside and outside design conditions; heating load calculation; infiltration; cooling load calculation; calculation heating systems; Auto. heating load			





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SDG 7.4.2 100% renewable energy pledge

Al-Zaytoonah University of Jordan take pride in producing enough green energy to supply the university buildings to be 100% depending on green energy. Importantly, Al-Zaytoonah University of Jordan increase the production of renewable energy, as Al-Zaytoonah University of Jordan produced 2,544,000 kwh this year with a total Energy Usage of 945000kwh. Also, Al-Zaytoonah University of Jordan took different measurement to ensure 100% renewable pledge, as follows:



1. Using electrical charging parking for the private electric vehicle.
2. Using renewable energy for electricity.
3. The first Jordanian solar park consists of different components; a solar tree where the leaves are PV panels (M36s-100Wp), a hybrid system (PV/wind), and solar umbrellas fitted with electricity outlets for students.
4. Rideshare is designed to encourage commuters to adopt healthy and sustainable transportation options. (Carpool).

	
<p>Charge Parking</p>	<p>Renewable Energy Using Solar System</p>
	
<p>First Jordanian Solar Park</p>	<p>Ride Share</p>

Affordable and Clean Energy

SDG 7.4.3 Energy efficacy service for industry

Al-Zaytoonah University of Jordan take a pride in providing free direct services to local industry aimed at improving energy efficiency and clean energy (energy efficiency assessments, workshops, and research renewable energy options).



Examples of Events Related to Environment (Al-Zaytoonah University of Jordan, Amman)

SDG 7

Affordable and Clean Energy

SDG 7.4.4 Policy development for clean energy technology

1. Al-Zaytoonah University of Jordan recognize the importance of establishing clean energy technology as well as developing policies for clean energy technology. For that purpose, Al-Zaytoonah University of Jordan has an agreement with Jordan Electricity Company in which the University provides the excess amount of its solar energy.

الكمية (ك.غ.س)	سابقة	حالية	المتبقي من الشبكة
78180	409445	417063	417063
110640	404886	416930	416930
0	0	0	0
المجموع		721590	

الوصف	الكمية	السعر	المبلغ
رسوم الاشتراك	1	750	750
رسوم استهلاك الكهرباء	0	000	0
رسوم استهلاك الغاز	40	000	40000
رسوم المياه	76	180	13680
رسوم الهاتف	1	000	1000
رسوم الانترنت	381	666	253746
رسوم الترميم	**	**	**
رسوم الصيانة	**	**	**
رسوم التأمين	**	**	**
رسوم الضريبة	500	496	248000
رسوم الخدمة	0	000	0
المجموع	500	496	248000

2. Al-Zaytoonah University of Jordan encourages its academics to be a part of different originations both nationally and internationally to shape and participate in policy development for clean energy

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2.1 Prof. Safwan Al-Qawabah from Mechanical Engineering Dept./ Faculty of Engineering worked as:

2.1.1 A member in the board directors of Cigre – Jordan



2.1.2 A member in Cigre – Paris



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- 2.1.3 the Head of steel committee in Jordan Standards of Metrology Organization
- 2.1.4 a member of International Advisory Board of Jordan Journal of Mechanical and Industrial Engineering [Click Here \(Link\)](#)



- 2.1.5 a Member of board of directors of EPPM Association EPPM-Association: Officers 2018 - 2020 (ppml.url.tw)
- 2.1.6 a Member of the technical committee of the 4th International Conference on Mechanical Design and Engineering (ICMDE 2018)-EI Compendex, Scopus, ICMDE--EI, Scopus 2018 : 2018 the 4th International Conference on Mechanical Design and Engineering (ICMDE 2018)--EI Compendex, Scopus (wikicfp.com)
- 2.1.7 a Member of the technical committee of the First Conference in Mechanical Engineering Science and Applications [Click Here \(Link\)](#)
- 2.1.8 a Member of the technical committee of The 7th International Conference on Advanced Materials Research [Click Here \(Link\)](#)



2.1.9 a Member in the steering committee of the IEEE Middle East & North Africa Communications Conference Advancing the Communication Vision [Click Here \(Link\)](#)

2.1.10 an Industrial Consultant for Jordan Engineer Association

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SDG 7.4.5 Assistant to low-carbon innovation

Al-Zaytoonah University of Jordan has three innovative programs-based solar energy namely:

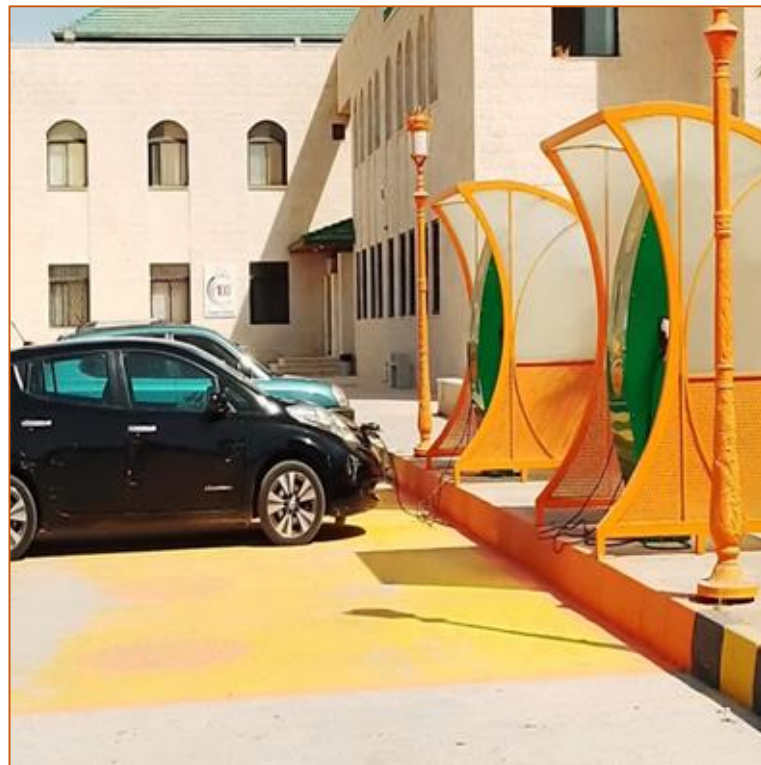
1. Sustainable Students Park (SSP) program: in this program, a solar photovoltaic system has been installed outdoors (in the university park), benefiting more than 10000 students and visitors who can enjoy charging their devices, connecting to the internet, lighted park at night, and free-smoke area.
2. Electronic Cars Charging Stations (ECCS) program: this program was launched by Al-Zaytoonah University of Jordan in 2019 to provide convenient and affordable charging for electronic cars.
3. University Solar Photovoltaic (USVP) Program: This program aims to provide the university with 2,544,000 kwh of solar-powered electricity for buildings lighting, heating, operating all electrical devices in the university such as operating air-conditioners and operating computers in labs.
4. Green Area Program aims to limit and decrease the parking area on campus (increasing the green area)
5. Sustainable Ecological System: This program has been funded by the Al-Zaytoonah University of Jordan to overcome the complex chronic problem of water scarcity for freshwater drinking and agriculture. This program has developed an innovative, sustainable and Ecological system as a solution to the water scarcity problem by designing a Renewable Energy Driven Vapor Absorption System (RE-VAS) for water harvesting from atmospheric air.
6. Forest Fire System: This program has been funded by Al-Zaytoonah University of Jordan to develop a reliable system that can detect wildfire before it is too late; Provide a fire behavior analysis and some important parameters using machine learning (such as the fire spreading rate, the spreading direction, the slope...etc.) for the firefighter department to reduce the faulty alarm and help the firefighter to plan the right teamwork for fire extinguishing. 3- Fire prediction using multiple inputs, such as WSN input, from sensor readings, sensor behavior, weather condition ...etc.



– Sustainable Students Park (SSP)



University Solar Photovoltaic (USVP)



Electronic Cars Charging Stations (ECCS)





Green Area Program aims to limit and decrease the parking area on campus (increasing the green area)



Sustainable Ecological System

HOME PAGE > NATIONAL > FEATURES

Initial fire-detection experiment held in Barqash forests

Roaa Rayyan, Jordan News • last updated: Sep 08, 2022



(Photos: Handout / Al-Khatib)

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AMMAN – An initial experiment on early fire-detection was conducted in the plantations of Barqash in Ajloun, a project

anniversary

Initial fire-detection experiment held in Barqash forests

Jordan, Hungary tackle cooperation

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